Curriculum Development Document

Design and Technology

Achieve Believe Care

Curriculum Rationale

At Howley Grange we strive to ensure that our curriculum enables all children to gain the wisdom and courage to make positive choices now, and in their futures.

Howley Grange is committed to providing children with an ambitious curriculum that is broad and balanced. We recognise the upmost importance of ensuring children gain fundamental literacy and numeracy skills and that they have opportunities to develop their individual interests and specialisms in a wide variety of subjects.

Staff plan key questions to encourage the use of enquiry, as well as focus on the acquisition and application of key subject knowledge, concepts and vocabulary throughout our school. Our curriculum is designed to help learners to remember the content they are taught in the long term and to integrate new knowledge into larger concepts. Parents, staff and most importantly our children tell us that they enjoy their learning and are eager to find out about the topics and themes, often choosing to take their learning beyond the classroom.

Purpose of Study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Attainment Targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.
Schools are not required by law to teach the example content in [square brackets]

Key Stage One: Coverage

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].
When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]

- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Key Stage Two: Coverage

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].
When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

The school DT Curriculum

Our DT curriculum planning is based on a published resource called 'Kapow Primary' that has been adapted and edited to suit our school. We ensure the four main statutory aims of the National Design and Technology curriculum (design, make, evaluate and technical knowledge) are fulfilled through the knowledge and skills of food, mechanisms, structures, textiles, electrical systems and digital world. The progression of these can be found in this document.

EYFS Overview of Design and Technology

The EYFS framework is structured differently to the National Curriculum as it is organised into seven areas of learning rather than subject areas, having said this, the skills taught in EYFS feed into National Curriculum subjects.
This table outlines the most relevant statements taken from the EYFS statutory framework and Development Matters . These are the prerequisite knowledge and skills for Design and Technology within the National Curriculum.
The most relevant statements for Design and Technology are taken from the following areas of learning: 'Physical Development', 'Expressive Arts and Design' and 'Understanding the World. These are planned for and delivered through discrete 'Expressive Arts and Design' teaching sessions but are also incorporated into 'Choosing to Learn time'.

Reception	Physical Development	• Choose the right resources to carry out their own plan. • Develop their fine motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.
	Expressive Arts and Design	• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.
	Understanding the World	• Explore how things work.
ELG	Physical Development-Fine Motor skills	• Use a range of small tools, including scissors, paintbrushes and cutlery.
	Expressive Arts and Design-Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used.

KS1 and KS2 Overview of Design and Technology

Y1	Y2	Y3	Y4	Y5	Y6
Structures: Creating a pencil pot Exploring stability through balancing and weights before designing and creating their own stable pencil pot that is suited to someone of their age.	**Structures: Baby bear's chair** Using the tale of Goldilocks and the Three Bears as inspiration, children help Baby Bear by making him a brand-new chair. When designing the chair, they consider his needs and what he likes and explore ways of building it so that it is strong.	**Textiles: Cross-stitch and appliqué** Learn and apply two new sewing techniques – cross-stitch and appliqué. Utilise these new skills to design and make a cushion.	**Textiles: Fastenings** Building upon their sewing skills, pupils design and create a book sleeve; exploring a variety of fastenings and selecting the most appropriate for their design based on strength and appropriate-use.	**Textiles: Stuffed Toys** Design a stuffed toy and make decisions on materials, decorations and attachments (appendages), after learning how to sew a blanket stitch.	**Electrical systems: Steady Hand Gamers** Understand what is meant by fit for purpose design and form follows function. Design and develop a steady hand game using a series circuit, including housing and backboard.
Textiles: Puppets Exploring different ways of joining fabrics before creating their own hand puppets based upon characters from a well-known fairytale. Children work to develop their technical skills of cutting, glueing, stapling and pinning.	**Mechanisms: Fire Engine** Designing and creating their own Fire Engine Models, considering how the different components fit together so that the wheels rotate and the structures stand freely. Pupils select appropriate materials and develop their cutting and joining skills	**Digital world: Mindful moments timer** Exploring the concept of mindfulness and writing design criteria to develop a programmed product for timing a mindful moment, this unit includes new teacher and pupil videos, with an increased focus on evaluation and the use of a virtual Micro:bit.	**Electrical systems: Torches** Identify the difference between electrical and electronic products. Evaluate a range of existing torches and their features, then develop a new functional torch design.	**Mechanical systems: Making a pop-up book** Creating a four-page pop-up storybook design incorporating a range of mechanisms and decorative features, including: structures, levers, sliders, layers and spacers.	**Structure: Playgrounds** Designing and creating a model of a new playground featuring five apparatus, made from three different structures. Creating a footprint as the base, pupils visualise objects in plan view and get creative with their use of natural features.
Food: Fruit and vegetables Handling and exploring fruits and vegetables and learning how to identify which category they fall	**Mechanisms: Making a moving Ferris wheel** After learning the terms; axle, pivot, and linkage, children design a Ferris	**Structures: Constructing a castle** Learning about the features of a castle, children design and make one of their own.	**Adapting a recipe** Work in groups to adapt a simple biscuit recipe, to create a biscuit suited to a chosen target audience.	**Food: What could be healthier?** Researching and modifying a traditional Bolognese sauce recipe to make it	**Digital world: Navigating the world** Programming a navigation tool to produce a multifunctional device for

into, before undertaking taste testing to establish their chosen ingredients for the smoothie they will make a design packaging for.	wheel which will move using a linkage mechanism. Children practise making axles.	Using configurations of handmade nets and recycled materials to make towers and turrets and constructing a base to secure them.	They ensure that their creation comes within a given budget of overheads and ingredients. (understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed: taught through Geography unit)	healthier. Children cook their healthier versions, making appropriate packaging and learn about farming cattle.	trekkers. Combining 3D objects to form a complete product in CAD 3D modelling software and presenting a pitch to 'sell' their product.

KS1 Structures		Year 1	Year 2
		Constructing a pencil pot	**Baby bear's chair**
Skills	Design	• Learning the importance of a clear design criteria • Including individual preferences and requirements in a design	• Generating and communicating ideas using sketching and modelling
	Make	• Making stable structures from card, tape and glue • Learning how to turn 2D nets into 3D structures • Following instructions to cut and assemble the supporting structure of a pencil pot	• Making a structure according to design criteria • Creating joints and structures from paper/card and tape • Building a strong and stiff structure by folding paper
	Evaluate	• Evaluating a pencil pot according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements	• Testing the strength of own structures • Identifying the weakest part of a structure • Evaluating the strength, stiffness and stability of own structure
Knowledge	Technical	• To understand that the shape of materials can be changed to improve the strength and stiffness of structures • To understand that cylinders are a strong type of structure • To begin to understand that different structures are used for different purposes • To know that a structure is something that has been made and put together	• To know that materials can be manipulated to improve strength and stiffness • To know that a structure is something which has been formed or made from parts • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move • To know that a 'strong' structure is one which does not break easily • To know that a 'stiff' structure or material is one which does not bend easily
	Additional	• To know that a client is the person I am designing for • To know that design criteria is a list of points to ensure the product meets the clients needs and wants	

KS2 Structures		Year 3 Constructing a castle	Year 6 Playgrounds
Skills	Design	• Designing a castle with key features to appeal to a specific person/purpose • Drawing and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features - materials needed and colours • Designing and/or decorating a castle tower on CAD software	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs
	Make	• Constructing a range of 3D geometric shapes using nets • Creating special features for individual designs • Making facades from a range of recycled materials	• Building a range of play apparatus structures drawing upon new and prior knowledge of structures • Measuring, marking and cutting wood to create a range of structures • Using a range of materials to reinforce and add decoration to structures
	Evaluate	• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design • Suggesting points for modification of the individual designs	• Improving a design plan based on peer evaluation • Testing and adapting a design to improve it as it is developed • Identifying what makes a successful structure
Knowledge	Technical	• To understand that wide and flat based objects are more stable • To understand the importance of strength and stiffness in structures	• To know that structures can be strengthened by manipulating materials and shapes
	Additional	• To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose • To know that a façade is the front of a structure • To understand that a castle needed to be strong and stable to withstand enemy attack • To know that a paper net is a flat 2D shape that can become a 3D shape once assembled	• To understand what a 'footprint plan' is • To understand that in the real world, design, can impact users in positive and negative ways • To know that a prototype is a cheap model to test a design idea

		• To know that a design specification is a list of success criteria for a product	

KS1 Mechanisms		Year 2	
		Fire Engine (NOT Kapow Unit)	Making a moving Ferris Wheel
Skills	Design	• Selecting a suitable linkage system to produce the desired motions • Designing a wheel Selecting appropriate materials based on their properties	• Creating a class design criteria for a Ferris wheel • Designing a Ferris wheel for a specific audience in accordance with a design criteria
	Make	• Selecting materials according to their characteristics • Following a design brief	• Making linkages using card for levers and split pins for pivots • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used • Cutting and assembling components neatly
	Evaluate	• Evaluating different designs • Testing and adapting a design	• Evaluating own designs against design criteria • Using peer feedback to modify a final design
Knowledge	Technical	• To know that different materials have different properties and are therefore suitable for different uses	• To know that mechanisms are a collection of moving parts that work together as a machine to produce movement • To know that there is always an input and output in a mechanism • To know that an input is the energy that is used to start something working • To know that an output is the movement that happens as a result of the input • • To understand that axles are used in structures and mechanisms to make parts turn in a circle • To know that a linkage mechanism is made up of a series of levers
	Additional	• To know the features of a fire engine model; include the wheel, frame, pods, a base an axle and an axle holder • To know that it is important to test my design as I go along so that I can solve any problems that may occur	• To know some real-life objects that contain mechanisms

KS2 Mechanisms		Year 5 Pop up book
Skills	Design	• Designing a pop-up book which uses a mixture of structures and mechanisms • Naming each mechanism, input and output accurately • Storyboarding ideas for a book
	Make	• Following a design brief to make a pop up book, neatly and with focus on accuracy • Making mechanisms and/or structures using sliders, pivots and folds to produce movement • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result
	Evaluate	
Knowledge	Technical	• To know that mechanisms control movement • To understand that mechanisms that can be used to change one kind of motion into another • To understand how to use sliders, pivots and folds to create paper-based mechanisms
	Additional	• To know that a design brief is a description of what I am going to design and make • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing

KS2 Electrical Systems		Year 4 Torches	Year 6 Steady Hand Gamers
Skills	Design	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas	• Designing a steady hand game - identifying and naming the components required. • Drawing a design from three different perspectives. • Generating ideas through sketching and discussion. • Modelling ideas through prototypes.
	Make	• Making a torch with a working electrical circuit and switch • Using appropriate equipment to cut and attach materials • Assembling a torch according to the design and success criteria	• Constructing a stable base for a game. • Accurately cutting, folding and assembling a net. • Decorating the base of the game to a high quality finish. • Making and testing a circuit. • Incorporating a circuit into a base.
	Evaluate	• Testing and evaluating the success of a final product and taking inspiration from the w	• Testing own and others finished games, identifying what went well and making suggestions for improvement.
Knowledge	Technical	• To know that an electrical circuit must be complete for electricity to flow • To know that a switch can be used to complete and break an electrical circuit	• To know that batteries contain acid, which can be dangerous if they leak. • To know the names of the components in a basic series circuit, including a buzzer.
	Additional	• To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison	• To understand the diagram perspectives 'top view', 'side view' and 'back'.

Cooking and nutrition		Year 1	Year 4	Year 5
		Fruit and vegetables	Adapting a recipe	What could be healthier?
Skills	Design	• Designing smoothie carton packaging by-hand or on ICT software	• Designing a biscuit within a given budget, drawing upon previous taste testing judgements.	• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients • Writing an amended method for a recipe to incorporate the relevant changes to ingredients • Designing appealing packaging to reflect a recipe
	Make	• Chopping fruit and vegetables safely to make a smoothie • Identifying if a food is a fruit or a vegetable • Learning where and how fruits and vegetables grow	• Following a baking recipe, including the preparation of ingredients. • Cooking safely, following basic hygiene rules. • Adapting a recipe to meet the requirements of a target audience.	• Cutting and preparing vegetables safely • Using equipment safely, including knives, hot pans and hobs • Knowing how to avoid cross-contamination • Following a step by step method carefully to make a recipe
	Evaluate	• Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging	• Evaluating a recipe, considering: taste, smell, texture and appearance. • Describing the impact of the budget on the selection of ingredients. • Evaluating and comparing a range of food products. • Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins).	• Identifying the nutritional differences between different products and recipes • Identifying and describing healthy benefits of food groups
Knowledge	Cooking and nutrition	• Understanding the difference between fruits and vegetables • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber)	• To know that the amount of an ingredient in a recipe is known as the 'quantity.' • To know that safety and hygiene are important when cooking. • To know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping.	• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues • To know that I can adapt a recipe to make it healthier by substituting ingredients

		• To know that a blender is a machine which mixes ingredients together into a smooth liquid • To know that a fruit has seeds and a vegetable does not • To know that fruits grow on trees or vines • To know that vegetables can grow either above or below ground • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber)	•To understand the importance of budgeting while planning ingredients for biscuits. • To know that products often have a target audience.	• To know that I can use a nutritional calculator to see how healthy a food option is • To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects

Textiles		Year 1	Year 3
		Puppets	Cross-stitch and appliqué Cushions
Skills	Design	• Using a template to create a design for a puppet	• Designing and making a template from an existing cushion and applying individual design criteria.
	Make	• Cutting fabric neatly with scissors • Using joining methods to decorate a puppet • Sequencing steps for construction	• Following design criteria to create a cushion or Egyptian collar. • Selecting and cutting fabrics with ease using fabric scissors. • Threading needles with greater independence. • Tying knots with greater independence. • Sewing cross stitch to join fabric. • Decorating fabric using appliqué. • Completing design ideas with stuffing and sewing the edges (Cushions)
	Evaluate	• Reflecting on a finished product, explaining likes and dislikes	• Evaluating an end product and thinking of other ways in which to create similar items.
Knowledge		• To know that 'joining technique' means connecting two pieces of material together • To know that there are various temporary methods of joining fabric by using staples. glue or pins • To understand that different techniques for joining materials can be used for different purposes • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times • To know that drawing a design idea is useful to see how an idea will look	•To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. •To know that when two edges of fabric have been joined together it is called a seam. •To know that it is important to leave space on the fabric for the seam. •To understand that some products are turned inside out after sewing so the stitching is hidden.

Textiles		Year 4	Year 5
		Fastenings	Stuffed Toys
Skills	Design	• Writing design criteria for a product, articulating decisions made. • Designing a personalised book sleeve.	• Designing a stuffed toy, considering the main component shapes required and creating an appropriate template. • Considering the proportions of individual components
	Make	• Making and testing a paper template with accuracy and in keeping with the design criteria. • Measuring, marking and cutting fabric using a paper template. • Selecting a stitch style to join fabric. • Working neatly by sewing small, straight stitches. • Incorporating a fastening to a design.	• Creating a 3D stuffed toy from a 2D design. • Measuring, marking and cutting fabric accurately and independently. • Creating strong and secure blanket stitches when joining fabric. • Threading needles independently. • Using appliqué to attach pieces of fabric decoration. • Sewing blanket stitch to join fabric. • Applying blanket stitch so the spaces between the stitches are even and regular.
	Evaluate	• Testing and evaluating an end product against the original design criteria. • Deciding how many of the criteria should be met for the product to be considered successful. • Suggesting modifications for improvement. • Articulating the advantages and disadvantages of different fastening types	• Testing and evaluating an end product and giving point for further improvements.
Knowledge		• To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro. • To know that different fastening types are useful for different purposes. • To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.	• To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. • To understand that it is easier to finish simpler designs to a high standard. • To know that soft toys are often made by creating appendages separately and then attaching them to the main body. • To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.

KS2 Digital World		Year 3 Mindful Moments Timer	Year 5 Navigating the world
Skills	Design	• Writing design criteria for a programmed timer (Micro:bit). • Exploring different mindfulness strategies. • Applying the results of my research to further inform my design criteria. • Developing a prototype case for my mindful moment timer. • Using and manipulating shapes and clipart by using computer-aided design (CAD), to produce a logo. • Following a list of design requirements.	• Writing a design brief from information submitted by a client • Developing design criteria to fulfil the client's request • Considering and suggesting additional functions for my navigation tool • Developing a product idea through annotated sketches • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD
	Make	• Developing a prototype case for my mindful moment timer. • Creating 3D structures using modelling materials. • Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press.	• Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo) • Explaining material choices and why they were chosen as part of a product concept • Programming an N,E, S,W cardinal compass
	Evaluate	• Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages. • Evaluating my Micro:bit program against points on my design criteria and amending them to include any changes I made. • Documenting and evaluating my project. • Understanding what a logo is and why they are important in the world of design and business. • Testing my program for bugs (errors in the code). • Finding and fixing the bugs (debug) in my code. • Using an exhibition to gather feedback. • Gathering feedback from the user to make suggested improvements to a product.	• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Developing an awareness of sustainable design • Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the client's request and how it will benefit the customers • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept
Knowledge	Technical	• To understand what variables are in programming. • To know some of the features of a Micro:bit. • To know that an algorithm is a set of instructions to be followed by the computer. • To know that it is important to check my code for errors (bugs).	• To know that accelerometers can detect movement • To understand that sensors can be useful in products as they mean the product can function without human input

		• To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device.	
	Additional	•To understand the terms 'ergonomic' and 'aesthetic'. •To know that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas and make better decisions about size, shape and materials. • To know that an exhibition is a way for companies to showcase products, meet potential new customers and gather feedback from users.	• To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request • To know that 'multifunctional' means an object or product has more than one function • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing